

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
20 October 2005 (20.10.2005)

PCT

(10) International Publication Number
WO 2005/099173 A1

(51) International Patent Classification⁷: **H04L 12/28, H04Q 7/38**

(21) International Application Number: **PCT/IB2005/051066**

(22) International Filing Date: 30 March 2005 (30.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/559,756 6 April 2004 (06.04.2004) US
60/578,337 9 June 2004 (09.06.2004) US

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS, N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).**

(71) Applicant: **U.S. PHILIPS CORPORATION [US/US]; 1251 Avenue of the Americas, New York, NY 10020 (US).**

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KAHLERT, Joachim, J. [DE/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL). BAUMEISTER, Markus [DE/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).**

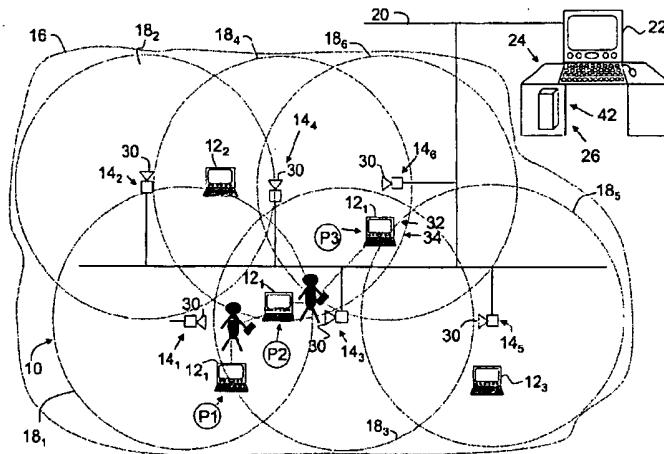
(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS, N.V.; c/o LUNDIN, Thomas, M., 595 Miner Road, Cleveland, OH 44143 (US).**

(81) Designated States (unless otherwise indicated, for every kind of national protection available): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): **ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**

[Continued on next page]

(54) Title: LOCATION BASED HANDOFF FOR MOBILE DEVICES



(57) Abstract: Mobile devices (12₁, 12₂, ..., 12_n) are handed off in overlapping cells (18₁, 18₂, ..., 18_n) by tracking a velocity (speed and direction) of movement of any number of the mobile devices (12₁, 12₂, ..., 12_n). Access points (14₁, 14₂, ..., 14_n) are each located in an associated operational cell (18₁, 18₂, ..., 18_n) and each operates at a dedicated frequency. The initial signal strengths are measured in advance at predefined locations within a defined space (16) to define signal strengths as location map (42). A nearby initial access point (typically the nearest) and at least two nearby (typically next nearest) access points are assigned for one of the mobile devices (12₁, 12₂, ..., 12_n), and the frequencies of each access point identified. A tracking processor (50) periodically scans the frequencies of the nearby access points to determine the location velocity of the mobile device and predict when a handoff will be appropriate. E.g., the actual signal strength measurements between the mobile device and the nearby access points are collected and analyzed to determine a proper time for a handoff of one or more of the nearby access points.

WO 2005/099173 A1

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

Published:

- *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.